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REPORT OF WATERMELON SHIPPING TESTS FROM THE SOUTHEAST TO NORTHERN MARKETS, 1947

Comparison of Several Loading Methods

By

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Comparison of Several Loading Methods.

This is our second report on the loading methods for watermelons for shipment in freight cars from the Southeast. It is concerned with a comparison of loading methods and covers the shipping tests that originated on the Seaboard Air Line Railway and the Atlantic Coast Line Railway Systems in Florida, Georgia, and South Carolina during the summer of 1947.

The first report, (H. T. & S. Office Report No. 176) gave the background and purpose of these studies, together with the loading methods followed in 1946 and the results obtained. Only one method was compared with the conventional, whereas in 1947 four methods were compared with the conventional one. These several methods will be described after a brief review of the results of the comparisons made in 1946.

During that summer the ordinary conventional method of loading was compared with one to which added protection was given by placing an excelsior pad crosswise of the car between the ends of the melons, throughout the load. These tests, conducted in the Fairfax district of South Carolina, were repeated 10 times. The results indicated that pads so placed had little, if any, effect upon breakage or spoilage during the transit period.

With the 1946 work as a background, a series of conferences were held with shippers and representatives of the carriers to formulate detailed plans for the 1947 program. It was decided that the tests should start in Central Florida as early in the season as practicable, followed by similar tests in north central Florida, north Florida, Georgia, and in southern South Carolina, terminating in the Hartsville district of South Carolina near the North Carolina line. It was also decided that the tests should be confined to the ventilated box car as long as that type of equipment was available.

Loading Methods

Four methods of car preparation or packing were selected for comparison with the usual or conventional method. In each car, including the checks, about 250 pounds of straw were used for floor bedding. A brief description of the protective materials placed at the ends and along the sidewalls will serve to show the difference between the several methods used.

The conventional practices or check method, so far as the present tests are concerned, specified some form of padding at the ends, usually excelsior pads, but sometimes it was straw held in place by burlap tacked to the end walls, and paper along the sidewalls.

In Test Method No. 1, or the Cincinnati plan, excelsior pads were placed at the ends of the car and along the sidewalls and doorboards. This method was suggested by the Association of American Railroads.

In Test Method No. 2, or the Illinois Central plan, straw was used to protect the first and third layers of melons at the ends of the car, while the second and fourth layers were protected by a rectangular bolsterlike fiber board tube or post crosswise of the car, held against the melons by straw chinked in between the ends of the car and the tube as well as between the melons and the car sidewalls. In some instances, at the request of the shipper, the sidewalls were papered as an extra precaution. This method was developed by the Illinois Central Railway.

In Test Method No. 3, the Hartsville plan, the ends and the sidewalls of the car were prepared in the conventional manner. As a further protection each melon throughout the load was nested in straw, thereby about doubling the amount of straw used as compared with the other methods. This is the method used generally in the Hartsville, South Carolina, district where the tender Garrison melon is grown extensively.

Test Method No. 4 was a modified pad plan. In it the car was prepared in the conventional manner. During loading two excelsior pads instead of only one were placed crosswise of the car to separate the ends of all melons throughout the first four stacks in both ends of the cars of round melons and the first three stacks of long melons. The remainder of the load was packed in the conventional manner. This method was suggested by railway officials engaged in claim prevention programs.

The first test cars and their checks were packed in the district around Leesburgh in central Florida June 2, 1947. Test loadings were started in the Gainesville-Trenton district, north central Florida, June 12; in the Live Oak district, north Florida, June 23; in the Cordele district, Georgia, July 1; in the Fairfax district, southeast South Carolina July 7; and terminated at Hartsville, South Carolina near the North Carolina line on August 1. Test shipments were made over a period of a week or ten days in each district.

It was not always possible to load both the test car and its companion with altogether comparable melons of the same stage of ripeness or from the same field or with the same degree of freedom from disease (anthracnose). Such variations could reasonably be expected to have some influence on the carrying quality of the melons.

The melons in a fair number of these cars were given the usual Government inspection for purposes of establishing their grade. As a part of the inspection, a record was made of the weight of a representative number of melons in each car. In the case of the round green melons the weight differential (spread between the lightest and heaviest weighed melon in the car) ranged from 8 to 29 lbs. with an average of 14.9 lbs. With the long green melons it ranged from 4 to 23 lbs. and averaged 11.6 lbs. while with the long striped melons it ranged from 10 to 20 lbs. and averaged 14.5 lbs.

Whenever this weight differential was small, a smooth pack was obtained, but when it was large an uneven pack usually resulted, especially if the melons were not carefully graded for shape.

The packing was done by professional packers who usually put up a fairly tight load. However, it sometimes happened that the same packer who loaded the test car did not load the check car. Due to the wide range in weights of melons frequently found in the same car, a smooth uniform pack-out could hardly be expected. However, when the melon weight ranged not more than 6 or 8 lbs., a smooth, uniform pack resulted.

Three general types of melons, (round green, long green, and long striped) were available for these tests. These melons differed not only in variety but in rind color, shape and ability to withstand rough treatment. They were not uniformly available throughout the different producing areas and so the shipments by varieties could not be kept in balance.

During the shipping season a total of 105 pairs of cars were packed and shipped with the hope that they would stay together to some distant destination.

Results

Because of marketing difficulties, it was not always possible to keep the paired cars together to a common destination, as is shown in Table 1. Reports from destination inspections have been returned to date on 102 pairs out of the total of 105. Of these only 61, or 58 percent, reached the same destination.

Method No.	1	was	used	in	25	tests;	of	these	15	were	unloaded	at	the	same	city		
" "	2	"	"	"	30	"	"	"	13	"	"	"	"	"	"		
" "	3	"	"	"	27	"	"	"	17	"	"	"	"	"	"		
" "	4	"	"	"	23	"	"	"	16	"	"	"	"	"	"		

Appearance of load at destination

Shifting: The visible shifting and disarrangement of the loads during the transit period are shown in tables 2, 3, 4, 5, 6, 7, 8 and 9. In some instances the greater shifting occurred in the test cars; in others in the check cars. More or less shifting of the load, accompanied by some upending or other disarrangment of the melons, occurred in most of the cars during the transit period, resulting in about as much difference in appearance between the several sets of check loads as between the test loads and their respective checks.

Decay in relation to type of melon

The rots that developed during the transit period, which was usually 5 to 10 days, were not greatly influenced by type of melon or loading method, table 10. A study of the average of all shipments by melon types shows that there was somewhat more decay, 1.9 percent, in the long green melons than in either of the other types, each of which averaged slightly more than 1 percent.

If only the non-split-destination loads are considered, there was little if any difference in decay between types of melons as influenced by loading method.

When loading methods are considered in relation to decay, the results indicate that there was no significant difference among them. The average decay in all test loads regardless of loading method amounted to 1.35 percent whereas in the check loads there was 1.34 percent spoilage. Of the rots that developed during transit, about a third was attributed to stem-end rot, nearly half to anthracnose, and about one fifth to other rots.

Physical injuries - all melon types and all loading methods combined

As an over-all picture of physical injury among all types and in all cars, the outturn reports indicate that 1.4 percent of the melons in the test cars and 2.0 percent of those in the check cars were bruised whereas 3.5 percent and 3.8 percent, respectively, were bruised, cracked, or broken. To be more specific, in the cars that were not separated during transit, there were 1.5 percent bruised in the test cars and 2.2 percent in the check cars; 2.5 percent total damaged in the former and 4.4 percent in the latter.

Varietal susceptibility: A study of table 10 shows that there were fewer salvageable-damaged (bruised) melons and less damage of all types (bruised, cracked, or broken) in the shipments of the round green melons than in shipments of either of the long types. On an average about 50 percent of the damage was salvageable.

In the 38 non-split pairs of loads there was about 1.9 percent total damage in the round green melons, 3.1 percent in the 12 pairs loaded with long green type, and 11.1 percent in the 12 pairs loaded with long striped melons. The same general trend was noted when all shipments were combined by melon types.

Comparison of loading methods - all melon types combined

Method No. 1

This comparison (tables 10, 11, 12, and 13) consisted of 24 pairs of cars, 15 of which went to the same market. In these 15 pairs the conditions were as follows:

Bruised melons: Average 18.9 melons (2.1 percent) and 12.6 (1.4 percent) per car in the test and check cars, respectively.

Bruised, cracked, or broken melons: Average 25.9 melons (2.8 percent) in the test car and 22.5 (2.4 percent) in the check car, but the difference is not statistically significant. Five of the test cars had more total physically damaged melons than their respective paired checks.

In the nine pairs that were split during transit and finally reached different markets, the conditions were as follows:

Bruised melons: Average 10.2 melons (1.1 percent) in the test cars and 13.3 (1.4 percent) in the check cars.

Bruised, cracked, or broken melons: Average 19.2 melons (2.1 percent) in the test cars and 17.5 (1.8 percent) in the check cars. Eight of the test cars had more bruised, cracked, or broken melons than their respective checks.

Thus when all of the records were averaged, more total physical injuries were found in the test cars than in the checks, regardless of whether each member of the pairing went to the same or a different destination.

Method No. 2

This comparison was made up of 30 paired test loadings (tables 10, 11, 14, and 15). Of this number 13 pairs were kept together until they reached a common unloading point, with the following results:

Bruised melons: Average 15.2 melons (2.0 percent) in the test cars and 12.8 (1.6 percent) in the check cars.

Bruised, cracked or broken melons: Average 32.6 melons (4.2 percent) in the test cars and 27.2 (3.4 percent) in the checks. Again the difference in damaged melons was not statistically significant. Four of these test cars had more physical injury than their companion or check cars.

In the seventeen pairs that were split during transit and were unloaded at different markets the conditions were as follows:

Bruised melons: Average 11.7 melons (1.3 percent) in the test cars and 10.6 (1.2 percent) in the check cars.

Bruised, cracked, or broken melons: Average 35.0 melons (4.0 percent) in the test cars and 21.1 (2.4 percent) in the check cars. There were more physical injuries in 8 of the test cars than in their respective checks.

Again when all of the loads were averaged there were more physical injuries regardless of destination in the test than in the check cars.

Method No. 3

A total of 26 pairs of cars, (tables 10, 11, 16 and 17) went forward under this plan. Of these 17 pairs reached the same market. In these 17 pairs of cars the conditions were as follows:

Bruised melons: Average 12.6 melons (1.5 percent) in the test cars and 29.6 (3.4 percent) in the checks.

Bruised, cracked or broken melons: Average 22.0 melons (2.6 percent) in the test cars and 73.0 (8.4 percent) in the checks. This difference is statistically of questionable significance. Of the 17 pairs, four of the test cars had more physically injured melons than their paired checks.

In the nine pairs that were split during transit and finally were unloaded at different markets the conditions were as follows:

Bruised melons: Average 19.4 melons (2.3 percent) in the test cars and 24.2 (3.0 percent) in the checks.

Bruised, cracked or broken melons: Average 34.1 melons (4.1 percent) in the test cars and 40.2 (5.0 percent) in the checks. Of these 9 comparisons 3 test cars had more physically injured melons than their checks.

The No. 3 method of loading when considered on the basis of averages of all shipments gave more protection to the test load than the conventional method, regardless of destination.

Bruised melons: There were 15.0 (1.8 percent) bruised melons in the test loads and 27.7 (3.3 percent) in the check loads.

Bruised, cracked, or broken melons: Average 26.2 melons (3.1 percent) in the test cars and 61.7 (7.3 percent) in the check cars, but statistically, the difference is probably not significant.

Method No. 4

This method of loading, (tables 10, 11, 18, and 19) was used in a total of 22 pairs of cars, of which 16 were kept together to a common unloading point. In these the conditions were as follows:

Bruised melons: Bruising was about 3 times as prevalent in the check cars as in the test cars, viz., 5.9 (0.7 percent) and 18.6 melons (2.1 percent), respectively.

Bruised, cracked, or broken melons: Average about the same as with other methods, 8.6 melons (1.0 percent) in the test cars and 26.1 (2.9 percent) in the check cars. Again these differences were not statistically significant. Four of the test cars had more physical injuries than their corresponding check cars.

In the six pairs of cars that arrived at different destinations the conditions were as follows:

Bruised melons: Bruising was many times greater in the check than in the test cars, 27.8 melons (2.8 percent) per car in the former and 1.7 (0.2 percent) in the latter.

Bruised, cracked, or broken: Average 110.0 melons (12.0 percent) in the test cars and 38.3 (3.9 percent) in the checks.

Considering all data on the 22 pairs of cars above the results were as follows:

Bruised melons: Average 4.7 melons (0.5 percent) in the test cars and 21.1 (2.3 percent) in the checks.

Bruised, cracked, or broken: Total physical injury was greater in the test loads than in the checks, averaging 36.2 melons (4.0 percent) in the former and 29.4 melons (3.2 percent) in the latter. Of these 6 comparisons four of the test loads had more physical injury than their respective check cars.

Mechanically damaged - round green melons only

Inasmuch as no long striped melons were loaded according to plan No. 4 and only 2 pairs were loaded with long green melons, of which only one was not split, it may be questioned whether the results from all 3 varieties should be consolidated for purposes of analysis. However, enough round green melons were loaded under each method and the pairs kept together to give a basis for comparing the breakage that occurred in the several loads.

Method No. 1

Eleven pairs of cars loaded with round green melons under this method were kept together to a common destination.

Bruised melons averaged 7.7 (0.8 percent) in the test cars; 4.8 (0.5 percent) in the check cars; bruised, cracked, or broken melons averaged 11.0 (1.5 percent) in the test cars and 13.5 (1.4 percent) in the check cars.

In four pairs there was more damage in the test cars than in their respective checks.

Method No. 2

Eight pairs of cars loaded with round green melons were not separated en route to market. An average of 15.6 (1.9 percent) bruised melons was reported in the test cars on arrival at destination, whereas 7.0 (0.8 percent) similarly affected melons were found in the check cars.

Physical injuries of all kinds were about as prevalent in the test cars as in the checks, viz., 20.6 melons (2.5 percent) in the former and 20.5 (2.3 percent) in the latter.

In two of the test loads there were more damaged melons in the test load than in their respective checks.

Method No. 3

Nine pairs of cars loaded in this fashion with round green melons were kept together to the same destination. On arrival there were 4.0 (0.5 percent) bruised melons on the average in the test cars and 12.6 (1.4 percent) in the check cars.

Total damage averaged 8.1 (1.0 percent) melons and 19.7 (2.2 percent) melons, respectively, in the test and check cars.

In 3 of these paired comparisons there were more damaged melons in the test cars than in the check cars.

Method No. 4

Each member of ten pairs of round green melons loaded under this plan reached the same destination.

On arrival, bruises averaged 8.2 (0.9 percent) melons in the test cars and 13.0 (1.5 percent) in the check cars, whereas there were 13.0 (1.5 percent) bruised, cracked, or broken melons in the former, and 21.5 (2.4 percent) in the latter.

Three of the test cars had more damaged melons than their respective check cars.

Discussion

It was impossible to obtain a uniform distribution of varieties in the loading methods, mainly because the several varieties were not uniformly available in the different districts where the tests were conducted. Shifting of the loads caused by impacts that occurred during the transit period and resulted in a disarrangement of the load occurred in each of the 5 methods of loading under study. In some instances a greater disarrangement occurred in the test cars; in others the reverse was true. Without some kind of a covering over the load to hold the top layer in place, it is questionable whether melons can be loaded in box cars so securely that shifting and disarrangement will not occur during a normal transit period. Whenever the load shifts, some breakage should be expected.

There appears to be no great difference in varietal susceptibility to decay. The percentage of decay from all causes was quite low, less than 1.4 percent in the check loads as well as in the test loads in spite of the fact that in the case of some of the paired loads, the test loads and its respective check load came from different fields.

It is also interesting to note that anthracnose caused a larger proportion of decay than stem-end rot. Of the decay that developed during the transit period about a third was attributed to stem-end rot and nearly half to anthracnose, with miscellaneous rots accounted for the remainder. Stem-end rot occurred in only negligible proportions in spite of the fact that weather conditions appeared favorable for the development of the disease and that in some cars no attempt was made to treat the stems for decay control. In most instances where treatment was attempted the application was made in a haphazard or careless manner. The least amount of physical damage was noted in the round green melons and the most in the long striped melons, which naturally are tender and easily bruised or cracked. Another factor that may have contributed to breakage in the long striped melons was the tendency common in certain districts to leave the melon on the vine until it became fully ripe if not somewhat overripe. A dead ripe melon can hardly be expected to be as strong as a less mature one. In the southern districts the round green melon predominated. There, because of the progressively declining market, the tendency was to ship the melons as soon as the inspection requirements for maturity could be met.

Doubtless some melons were bruised or cracked during the harvesting, trucking or car loading operations, and their presence escaped detection by those handling the melons in the car. Hence it is reasonable to assume that some of the physical damage observed at destination actually occurred before or during car loading.

Melons reported as bruised have some salvage value; hence they are not a total loss, whereas cracked or broken melons are a total loss.

The grand total from all loading methods in their relation to breakage indicates that less than 4 percent of the melons were bruised, cracked, or broken, and about half of this was recorded as "bruised" or salvageable.

Obviously loading methods Nos. 1 and 2 were little if any better than the conventional check.

Methods Nos. 3 and 4 gave on the average considerably less damage than the conventional method; yet because of the variation both within and between the methods it is questionable whether the difference between the test methods and their checks can be regarded as significant.

There is strong evidence that the cars in a paired test did not always receive essentially the same impact during the transit period. This was indicated not only by the general appearance of the loads but also the outturn reports concerning breakage.

Summary

Shifting and disarrangement of watermelons in the car during the transit period occurred in all 5 methods of loading.

Of the three types of melons, viz., round green, long green, and long striped used in these tests, all were about equally affected by decay, but considering all of the loads, regardless of destination, this did not exceed 1.5 percent. Anthracnose rather than stem-end rot accounted for the greatest amount of spoilage. Loading method had but little if any effect on decay.

The greatest amount of breakage occurred in the long-striped type of melons and the least in the round green melons. There was more than 5 times as much breakage in the long striped and about twice as much in the long green as in the round green.

Loading methods 1 and 2 proved to be little if any better than the conventional method, whereas loading methods 3 and 4 appeared somewhat better, based on averages, than their respective checks. The greatest difference was between test and check in loading method No. 3. Yet because of variations among and between the tests these differences probably are not significant enough to justify shippers in using one method in preference to another.

It is questionable whether an inexpensive car loading method can be devised that will greatly reduce breakage during the transit period unless cars while in the yards as well as after being made up in trains are handled more carefully than now seems practicable.

Even under present conditions the losses from decay and breakage were not excessive in these 204 cars of melons, being less than 1.4 percent decay and less than 4 percent bruised, cracked, or broken developed during the transit period.

Acknowledgments

This work could not have been conducted had it not been for the generous cooperation of growers, grower's agents, shippers, carriers, and receivers. At times this cooperation necessitated considerable inconvenience and financial sacrifice on the part of sales agencies and the interests they represented. Even greater inconvenience was imposed unavoidably upon the carriers and their representatives who participated in the tests.

The list of all those who thus cooperated would be too long to include in this brief report, but their wholehearted cooperation made a burdensome task a pleasant one withal. Without the generous and tireless cooperation rendered all along the line, this large number of tests could not have been made.

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(1) Central Florida (2) North Central Florida (3) North Florida
(4) Georgia (5) Southeastern South Carolina (6) Northeastern South Carolina

Table 1. Distribution of varieties by loading methods.

Loading Method	Non-split destination				Split destination				Total			
	RG*	LG	LS	Subtotal	RG	LG	LS	Subtotal	RG	LG	LS	Total
1	11	2	2	15	7	2	0	9	18	4	2	24
2	8	1	4	13	14	1	2	17	22	2	6	30
3	9	3	5	17	5	0	4	9	14	3	9	26
4	10	6	0	16	4	2	0	6	14	8	0	22
Total	38	12	11	61	30	5	6	41	68	17	17	102

*RG signifies round green type melon
LG - long green type melon
LS - long striped type melon

Table 2. Appearance at destination of watermelons. Loading Method No. 1 - Cincinnati Plan. Non-split destination.

Test No.	Type Car	Type Melon	Layers	Loading District	No. days in transit***	Destination	Appearance at destination: Test Load	Appearance at destination: Check Load
1 & 2	V*	RG**	3	Central Florida	5	Pittsburgh, Pa.	Lengthwise shift 18-28". 1 stack settled opposite end. 18 melons upended.	Lengthwise shift 18-30". Few cracked melons. 2 stacks settled 6-8" below load level. 14 melons upended.
7 & 8	V	RG	3	do	6	N. Y. area	A end settled 4".	1 stack each end settled up to 5".
9 & 10	V	RG	3	do	5	Chicago, Illinois	Lengthwise shift 12-16". 4 stacks settled. Melons upended and disarranged.	Lengthwise shift 20-60".
13 & 14	V	RG	3	do	5	Detroit, Mich.	Lengthwise shift 10-12". 1st and 2nd stacks settled.	Lengthwise shift 3-4". 1st 2 stacks settled 4-6".
77 & 78	V	RG	3	North Central Florida	6	do	Settled 5-10", 2 stacks A end. 3-8" 3 stacks B end.	Settled 5-10" 1st 2 stacks A end, 3-5" 1st stack B end
79 & 80	V	RG	3	do	8	Youngstown, Ohio	Load level, fairly tight each end.	Load level, fairly tight each end.
97 & 98	V	RG	3	North Florida	10	Flint, Michigan	3 stacks B end sloped to 1 layer. 2 stacks A end jumbled.	1 stack each end settled, irregular, and jumbled.
99&100	V	RG	3	do	6	Pittsburgh, Pa.	10 percent top layer tilted and upended.	3 stacks A end settled, disarranged 2-6" below level of load. 15 percent top layer tilted and upended.
133&134	V	RG	4	Georgia	5	N. Y. area	1st 2 stacks A end settled up to 6". 1st 3 stacks B end settled up to 8".	1st 2 stacks A end settled up to 4". 1st 2 stacks B end up to 8". 6 stacks in doorway settled below load level.
135&136	V	RG	3	do	5	do	2 stacks 1 end settled up to 12". 2 stacks other end settled up to 10".	2 stacks 1 side doorway settled below load level.
155&156	V	RG	3	Southeast S.C.	5	Philadelphia, Pa.	No record of load appearance.	No record of load appearance.
161&162	V	LG	4	do	6	N. Y. area	2 top layers 2nd stack 1 end raised.	Load level except few top layer melons doorway settled 2-4".
163&164	V	LG	4	do	6	do	Load shift 1 end up to 3 ft.	1st stack each end settled 4".
115&116	V	LS	4	North Florida	6	do	3 stacks B end settled up to 12". 2 stacks A end upended.	1 stack B end settled up to 18". 2 stacks A end upended.
179&180	V	LS	3	Northeast S. C.	5	do	1 stack 1 end settled up to 10".	1st stack 1 end settled up to 10".

* V signifies ventilated box car.

** RG signifies round green type melon.
LG long green type melon.
LS long striped type melon.

*** Days in transit represents interval between loading and unloading.

Table 3. Appearance at destination of watermelons. Loading Method No. 1 - Cincinnati Plan. Split destinations.

Test No.	Car*	Melon**	Layers	Loading District	Test Load			Check Load		
					No. days in transit***	Destination	Appearance at destination	No. days in transit	Destination	Appearance at destination
3 & 4	V	RG	3	Central Florida	8	Green Bay, Wis.	Sl. disarrangement last 4 rows A end.	5	Chicago, Ill.	1 stack B end settled.
67 & 68	V	RG	3	North Central Florida	-	La Crosse, Wis.	No record of load appearance	6	Akron. O.	3 stacks 1 end settled 4-6".
73 & 74	V	RG	3	do	7	Manands, N. Y.	3 stacks B end settled 6-8". 1 stack A end sl. crowded.	8	Norfolk, Va.	2 stacks each end below level of load.
81 & 82	V	RG	3	do	5	Norfolk, Va.	2 stacks B end sl. shifted. Jumbled and settled below load level.	7	N. Hawthorne, N. J.	2 layers B end shifted up to 3 ft. Few top layer melons along sidewall settled and disarranged.
109&110	V	RG	3	North Florida	7	Lawrence, Mass.	No record of load appearance	-	Newark, N. J.	No record of load appearance
111&112	V	RG	3 & 4	do	7	Erie, Pa.	do	8	Pittsburg Pa.	do
131&132	V	RG	3	Georgia	4	Columbus, Ohio	5 stacks B end jumbled.	5	Chicago, Illinois	1 stack A end, 2 stacks B end sl. settled below surface of layer level.
157&158	V	LG	4	Southeast S.C.	6	Baltimore, Md.	2 stacks A end jumbled, 2 stacks B end. Number of melons upended.	8	Philadelphia, Pa.	1st stack settled 4-6" B end.
175&176	V	LG	4	do	9	Toronto, Can.	Load shifted. Melons on end throughout car.	4	Boston, Mass.	Melons shifted to A end 10-12".

* V signifies ventilated box car.
** RG signifies round green type melon.
LG long green type melon.

*** Days in transit represents interval between loading and unloading.

Table 4. Appearance at destination of watermelons. Loading Method No. 2 - Illinois Central. Non-split destination.

Test No.	Type Car*	Melon**	Layers	Loading District	No. Days in transit***	Destination	Appearance at destination: Test Load	Appearance at destination: Check Load
33 & 34	V	RG	3	Central Florida	8	Minneapolis, Minn.	B end shifted 1-5 ft. 8 stacks A end disarranged. Many melons top layer upended.	A end shifted 1-5 ft. 7 stacks B end disarranged. Many melons top layer upended.
39 & 40	V	RG	3	North Central Florida	6-8	Boston, Mass.	Load shifted B end 6-16". Many melons upended. Fibreboard flattened.	Load shifted 4-18". from dwy. toward each end. 11 melons upended, mostly in end stacks.
41 & 42	V	RG	3	do	7-6	N. Y. area	2-3" space between 1st and 2nd stacks 1 end. Melons 1st stack upended each end.	2 stacks 1 end settled. Melons 1st stack opposite end upright.
43 & 44	V	RG	3	do	7	Springfield, Mass.	Load in good order.	Load in good order.
95 & 96	V	RG	3	do	6	N. Y. area	2 stacks 1 end settled.	3 stacks settled 1 end, 1 stack settled opposite end. Few scattered melons upended.
113&114	V	RG	3	North Florida	7	Pittsburgh, Pa.	Car found empty before inspection could be made.	Car found empty before inspection could be made.
121&122	V	RG	3	Georgia	6-8	Philadelphia, Pa.	1st stack A end 4" below load level.	2 stacks B end sunken 4-8". Few top layer melons tilted.
127&128	V	RG	3	do	8	Detroit, Mich	Load settled 5-10" 1st 2 stacks A end.	Settled 5-12" 1st stack B end and 1st and 2nd stacks A end.
151&152	V	LG	4	Southeast S. C.	4	Philadelphia, Pa.	2 stacks A end sunken 4-8". Few top layer melons tilted.	Arrived in good order. Load free from damage.
181&182	V	LS	3	Northeast S. C.	5	N. Y. area	1st stack A end settled up to 4".	Top layer melons 1st stack 1 end sl. settled. Balance load level.
183&184	V	LS	3	do	7-6	Providence, R. I.	Load badly shifted from A to B end.	Load shifted about 3 ft. from B end.
195&196	V	LS	3	do	5	N. Y. area	1st stack A end settled up to 12".	Load good, level, tight.
203&204	V	LS	3	do	7	do	2 stacks A end settled 2-10". Opposite end tight, 24 interspersed top layer melons upended.	1st stack 1 end settled up to 12". Few melons top layer upended.

* V signifies ventilated box car.

** RG signifies round green type melon.
LG long green type melon.
LS long striped type melon.

*** Days in transit represents interval between loading and unloading.

Table 5. Appearance at destination of watermelons. Loading Method No. 2 - Illinois Central. Split destinations.

Test No.	Type Car*	Melon**	Layers	Loading District	No. days in transit***	Destination	Test load Appearance at destination	No. days in transit	Destination	Check Load Appearance at destination
21 & 22	S	RG	3	Central Florida	9	Akron, Ohio	Load in good order.	13	Cincinnati, O.	Load in good order.
25 & 26	V	RG	3	do	5	Kingston, N.Y.	No record of load appearance.	5	N.Y. area	2 stacks A end settled up to 10"; 2 stacks B end settled up to 12".
27 & 28	V	RG	3	do	9	Detroit, Mich	Top layer 4" shifted away from end; adjoining upper layer settled.	5	Chicago, Illinois	6-10" shift from A to B end, 2 stacks A end settled. Melons upended; 3 stacks B end crowded and upended. Few melons surface layer partly upended.
29 & 30	S	RG	3	do	7	Boston, Mass.	Load shifted away from A end 12-16" upper 2 layers; tubes B end flattened out.	7	Houlton, Maine	No record of load appearance.
31 & 32	V	RG	3	do	8	Binghampton, N. Y.	Load in good order.	6	Cleveland, Ohio	East end 2 stacks settled 2-4"; west end 1 stack settled 2-3"; 3 rows side settled 2-8"
37 & 38	S	RG	3	North Central Florida	7	Rochester, N. Y.	Load loosened sl. each end; end stacks top layer upended; tubes collapsed.	5	Chicago, Illinois	Both ends 2 ft. shift.
45 & 46	V	RG	3	do	14	N. Y.	Load in good order.	12	Newcastle, Pa.	Load in good order.
71 & 72	V	RG	3	do	8	Pittsfield, Mass.	No record of load appearance.	No record	Robbinsville, N. J.	No record of load appearance.
91 & 92	V	RG	3	do	7	Portland, Maine	No record of load appearance, presumably normal.	6	Lock Haven, Pa.	No shifting of load during transit.
105&106	V	RG	3	North Florida	4	Norfolk, Va.	Load shifted A to B end, 2 stacks out of position, jumbled and disarranged in A end of car; 3 stacks buckled in B end. Cardboard tubes in B end mashed flat.	5	Richmond, Va.	Visible load in good order.
117&118	V	RG	3	do	5	N. Y. area	No record of load appearance.	6	Cincinnati, Ohio	3-5" slack at B end; 2 stacks settled 3-5". 2 stacks slightly congested A end. Balance load level.
123&124	V	RG	3	Georgia	6	Cleveland, O.	Good order except for melons sloped in end of car.	7	Syracuse, N. Y.	2 stacks one end settled 10" below load level. Sl. congestion other end.
137&138	V	RG	3	do	5	Pittsburgh, Pa.	1 stack A end, 2 stacks B end sl. sunken.	4	Olney, Ill.	Load in apparently good order from external inspection.
169&170	V	RG	3	Southeast S. C.	7	Scranton, Pa.	1-2 ft. movement A to B end; 3 stacks A end disturbed 6-12" below load level. Jumbled appearance. B end 10 melons upended between doorway and end of car.	No record.	Oneonta, N. Y.	Car arrived in very good condition.
167&168	V	LG	4	do	8	N. Y. area	No record of load appearance.	5	Olneyville, R. I.	No record of load appearance.
139&140	S	LS	3	do	8	Trenton, N.J.	Shift of lading in transit.	No record.	Philadelphia, Pa.	Sl. shift toward B end of car.
137&138	V	LS	3	Northeast S. C.	7	Providence, R. I.	Badly shifted from door to end.	6	N. Y.	2 stacks A end upended, 2 stacks B end settled up to 12". 1 row along both sidewalls settled up to 6".

* S signifies stock car.
V ventilated box car.

** RG signifies round green type melon.
LG long green type melon.
LS long striped type melon.

*** Days in transit represents interval between loading and unloading.

Table 8. Appearance at destination of watermelons. Loading Method No. 3 - Hartsville Plan. Non-split destinations.

Test No.	Type Car	Type Melon	Layers	Loading District	No. days in transit	Destination***	Appearance at destination: Test Load	Appearance at destination: Check Load
55 & 56	V*	RG **	3	North Central Florida	No record	Miami, Fla.	Tight, solid load.	No record of load appearance.
59 & 60	V	RG	3	do	8-7	Youngstown Ohio	Top of load level, fairly tight at each end.	2 stacks each end settled 6-8". Remainder of load level.
61 & 62	V	RG	3	do	7	N. Y. area	3 stacks one end sl. upended. 1st stack opposite end settled 6-18", disarranged.	3 stacks 1 end, 2 stacks other end settled and disarranged. Top layer melons shifted 12-18" from each end of car. Wall row one side settled.
69 & 70	V	RG	3	do	6	Boston, Mass.	Load in good order.	Fair to good order.
87 & 88	V	RG	3	do	7	do	Tight load in good order.	Tight load in good order.
89 & 90	V	RG	3	do	6	N. Y. area	2 stacks 1 end sl. settled. 5 melons each wall row next to door settled. Rest of load in good order and arrangement.	3 stacks each end settled. 3 stacks doorway upended.
93 & 94	V	RG	3	do	5	Boston, Mass.	Tight load in good order.	Shift to B end 2 ft. Few melons B end above load level and upended. Top layer 1st stack A end settled below load level and upended.
119&120	S	RG	3	Georgia	7	Detroit, Mich.	Load settled 5-10" 1st 2 stacks each end.	Melons last stack each end settled 8".
129&130	V	RG	3	do	5	Flint, Mich.	Load level. No visible disarrangement.	Load settled to 2 layers in 1 stack each end.
75 & 76	V	LG	4	North Central Florida	7	N. Y. area	1 stack A end settled. Rest of load in good order and arrangement.	2 stacks 1 end settled and disarranged. Many top layer melons sl. upended.
85 & 86	V	LG	4	do	6	Boston, Mass.	Load away from A end 6-12" in all layers. Few upended in B half of car.	Melons shifted away from A end 10-18" upper 3 layers.
171&172	V	LG	4	Southeast S.C.	4	Baltimore, Md.	Load in good order except 2-3 stacks in each end where melons were disarranged.	2 stacks B end jumbled and upended.
185&186	V	LS	3	Northeast S.C.	7	N. Y. area	1st stack B end settled up to 12", otherwise level.	1 stack A end shifted away from end wall 0-12", settled and disarranged. 2 stacks opposite upended and disarranged. About 25 interspersed top layer melons sl. upended.
189&190	V	LS	4	do	4	do	Load in good order.	Load in good order.
191&192	V	LS	4	do	6	Boston, Mass.	Load shifted 12-18" from B end. Top layer melons 2 stacks A end tilted, upended and disarranged.	Load shifted from B end 18-24". Some top melons B end disarranged and upended.
201&202	V	LS	3	do	4	N. Y. area	1st stack 1 end settled up to 12".	Load shifted away from wall at one end 10". 4 melons other end upended.
205&206	V	LS	4	do	10-5	Boston, Mass.	Load shifted 12-30" from B to A end. Few melons upended.	Load shifted to B end 24-28". Car leaking badly A end.

* V signifies ventilated box car.
S stock car.

** RG signifies round green type melon.
LG long green type melon.
LS long striped type melon.

*** Days in transit represents interval between loading and unloading.

Table 7. Appearance at destination of watermelons. Loading Method No. 3 - Hartsville Plan. Split destinations.

Test No.	Type Car*	Type Melon**	Layers	Loading District	Test Load: No. days in transit***	Test Load: Destination	Test Load: Appearance at destination	Check Load: No. days in transit	Check Load: Destination	Check Load: Appearance
5 & 6	V	RG	3	Central Florida	13	Saskatoon, Sas., Canada	No shift in load.	7	N. Y. area	Load in good order.
17 & 18	V	RG	3	do	7	Detroit, Mich.	Top layer B end shifted 4". Melons first stack settled. 1st stack A end settled 4".	6	Chicago, Illinois	3 stacks B end settled. 2 stacks A end jumbled. 12-16" shift from B to A end. 3 stacks in doorway partly settled and disarranged.
57 & 58	V	RG	3	North Central Florida	7	N. Y. area	3 stacks one end sunken 4-8".	5	Cincinnati, O.	1 stack end of car settled 3-4".
65 & 66	V	RG	3	do	6	Youngstown, O.	Load in good order.	7	Pittsburgh, Pa.	2 stacks A end settled and disarranged. 2 stacks B end settled. 3 stacks settled 4-6" side dwy.
83 & 84	V	RG	3	do	11	Somerset, Pa.	No record of load apprnc	7	N.Y. area	1 stack 1 end settled. 1 stack opposite end upended.
19 & 20	V	LS	3	Central Fla.	5	Portsmouth, Va.	do	5	Norfolk, Va.	Load shifted from B to A end. 3 stacks falling out of position and disarranged. 2 stacks buckled in A end.
193&194	V	LS	3	Northeast S.C.	4	N. Y. area	Load in good order, level.	11?	Philadelphia Pa.	Load fairly level. Fairly good order.
197&198	V	LS	4	Northeast S.C.	5	do	Load shifted away from B end up to 3½ ft. 20 melons in various stacks in A end upended, disarranged.	10?	do	Load tightened toward either end. Few top layer melons tilted.
199&200	V	LS	4	do	7	Phila., Pa.	1st 2 stacks B end settled 6-10". Load shifted toward A end.	8	Boston, Mass.	Load shifted from B end 12-16". A end 8-12".

* V signifies ventilated box car.

** RG signifies round green type melon.
LG long green type melon.
LS long striped type melon.

*** Days in transit represents interval between loading and unloading.

Table 8. Appearance at destination of watermelons. Loading Method No. 4 - Modified Pad. Non-Split Destinations.

Test No.	Type Car*	Melon**	Layers	Loading District	No. days in transit***	Destination	Appearance at destination: Test Load	Appearance at destination: Check Load
11 & 12	V	RG	3	Central Florida	9	Worcester, Mass.	Melons in 2nd and 3rd stacks B end sl. tilted. Remainder of stacks tight. Good general condition.	Melons 2 stacks B end sl. disarranged. No evidence of shifting.
23 & 24	V	RG	3	do	6	Detroit, Mich.	1st 2 stacks each end settled 4-6".	Top layer A end settled 12". 1st 2 stacks B end settled 4-5".
35 & 36	V	RG	3	North Central Fla.	6-7	Springfield, Mass.	Load in good order.	Load in good order.
49 & 50	V	RG	3	do	No record.	Portland, Me.	No record of load apprnc.	No record of load apprnc.
51 & 52	V	RG	3	do	9	Worcester, Mass.	1 stack B end settled 2". below load level.	1st 3 stacks B end settled 2-4" below load level.
101&102	V	RG	3	North Florida	No record.	Fairmont, W. Va.	No record of load apprnc.	No record of load apprnc.
103&104	V	RG	3	do	5	Louisville, Ky.	3 stacks each end settled 2-4".	Load level and tight.
107&108	S	RG	3	do	5	Pittsburgh, Pa.	1st 3 stacks B end sl. settled.	1st 3 stacks A end settled. 1st stack B end upended.
143&144	V	RG	3	Southeast S. C.	4	Baltimore, Md.	Car practically unloaded before inspector arrived.	Melons sl. disarranged 2 or 3 stacks each end of car.
145&146	V	RG	3	do	4	Phila., Pa.	Load in good order.	Shifted 1 ft. from 1 end of car, some melons upended above load level.
141&142	V	LG	4	do	4	N. Y. area	1st 2 stacks 1 end settled up to 6".	Load away from wall one end up to 12". 2 stacks other end upended.
147&148	V	LG	4	do	4	do	1 stack A end settled up to 4". 3 melons in stack upended.	1 stack settled 2-4" one end. 1 stack upended other half of car.
149&150	V	LG	4	do	12	Boston, Mass.	Load in good order.	Melons shifted away from A end 12-14" top layer, jumbled in B end. Few upended.
153&154	V	LG	4	do	4	N. Y. area	2 stacks A end settled up to 8". Load level and tight B end.	2 stacks upended. 1 stack other end settled 2-6".
165&166	V	LG	4	do	5	Baltimore, Md.	Load in good order.	2 stacks in each end of car jumbled.
173&174	V	LG	4	do	8	N. Y. area	Load shifted away from wall 1 end up to 12". 1st stack other end settled up to 10". 2 stacks upended.	Load shifted away from one end up to 8". 4 melons other half car upended.

* V signifies ventilated box car.
S stock car.

** RG signifies round green type melon.
LG long green type melon.

*** Days in transit represents interval between loading and unloading.

Table 9. Appearance at destination of watermelons. Loading Method No. 4 - Modified pad. Split destinations.

					TEST LOAD			CHECK LOAD		
Test No.	Car	Melon	Layers	Loading District	No. days in transit***	Destination	Appearance at destination	No. days in transit	Destination	Appearance at destination
15 & 16	V*	RG**	3	Central Florida	5	Detroit, Mich.	1st 3 stacks B end 1st stack A end settled 6"	7	N.Y. area	2 stacks 1 end; 1 stack other end settled 6-14".
53 & 54	V	RG	3	North Central Florida	7	Hamilton, Ont., Canada	No shift noticeable.	7	London Ont., Can.	Perfect condition except sl. depression B end.
63 & 64	V	RG	3	do	10	Olney, R. I.	Load in good order	9	Burlington, Vt.	No record of load appearance.
177&178	V	RG	3	Southeast S. C.	6	Altoona, Pa.	No record of load appearance.	5	Buffalo, N.Y.	3 stacks settled down at A end; parts of 2 stacks B end.
125&126	V	LG	4	Georgia	12	Lancaster, Pa.	Melons jammed from both ends toward center.	5	Baltimore, Md.	1st 2 stacks each end sl. disarranged, upended. 1st stack A end settled 4-6".
159&160	V	LG	4	Southeast S. C.	6	N. Y. area.	Top layer 1st stack one end settled. Balance of load in fairly good condition.	No record.	Worcester, Mass.	1st 2 stacks A end settled up to 4".

* V signifies ventilated box car.

** RG signifies round green type melon.
LG long green type melon.

*** No. days in transit represents interval between loading and unloading.

Table 10.

Summary Table
Breakage and decay in watermelons

Variety or loading method	Split or non-split destination	No. cars	No. melons		Percent bruised		Percent bruised, cracked, broken		Percent decayed	
			Test	Check	Test	Chk.	Test	Chk.	Test	Check
RG	Non-split	38	33282	34157	1.0	1.0	1.6	12.1	1.6	1.2
	Split	30	26417	27287	0.4	1.0	2.0	1.8	1.2	0.9
	All	68	59699	61444	0.7	1.0	1.8	2.0	1.4	1.1
LG	Non-split	12	11004	11104	1.6	3.5	2.2	4.1	0.8	2.2
	Split	5	4988	5086	1.5	4.1	13.2	4.7	2.3	3.3
	All	17	15992	16190	1.6	3.6	5.6	4.3	1.2	2.6
LS	Non-split	12	8037	8089	3.6	5.2	7.6	14.6	1.8	1.3
	Split	6	4597	4541	6.6	4.6	11.9	8.1	0.3	0.7
	All	18	12634	12630	4.7	5.0	9.2	12.3	1.2	1.1
1	Non-split	15	13795	13789	2.1	1.4	2.8	2.4	1.8	0.8
	Split	9	8089	8820	1.1	1.4	2.1	1.8	0.7	0.8
	All	24	21884	22609	1.7	1.4	2.6	2.2	1.4	0.8
2	Non-split	13	9994	10341	2.0	1.6	4.2	3.4	1.3	1.1
	Split	17	14894	14948	1.3	1.2	4.0	2.4	1.0	1.4
	All	30	24888	25289	1.6	1.4	4.1	2.8	1.1	1.3
3	Non-split	17	14340	14854	1.5	3.4	2.6	8.4	1.9	1.6
	Split	9	7514	7238	2.3	3.0	4.1	5.0	1.5	0.9
	All	26	21854	22092	1.8	3.3	3.1	7.3	1.7	1.4
4	Non-split	16	14196	14366	0.7	2.1	1.0	2.9	0.7	2.0
	Split	6	5505	5908	0.2	2.8	12.0	3.9	0.7	1.4
	All	22	19701	20274	0.5	2.3	4.0	3.2	0.7	1.8
All non-splits		61	52325	53350	1.5	2.2	2.5	4.4	1.4	1.4
All splits		41	36002	56914	1.3	1.9	4.8	3.0	1.2	1.2
Grand total		102	88327	90264	1.4	2.0	3.5	3.8	1.35	1.34

Table 11.

Summary table.
Average breakage and decay of watermelons.

Average no. per car.

Split or non-split destination	No. cars	No. melons		No. bruised		No. bruised cracked & broken		No. decayed	
		Test loads	Check load	Test load	Check load	Test load	Check load	Test load	Check load
I.									
Non-split	15	919.7	919.3	18.9	12.6	25.9	22.5	16.8	7.4
Split-	9	898.8	980.0	10.2	13.3	19.2	17.5	17.1	11.0
All	24	911.8	942.0	15.6	12.9	23.4	20.6	16.9	8.8
II.									
Non-split	13	768.8	795.5	15.2	12.8	32.6	27.2	10.1	8.8
Split	17	876.1	879.3	11.7	10.6	35.0	21.1	8.9	12.7
All	30	829.6	843.0	13.2	11.6	33.9	23.8	9.4	11.0
III.									
Non-split	17	843.5	873.8	12.6	29.6	22.0	73.0	15.7	14.1
Split	9	834.9	804.2	19.4	24.2	34.1	40.2	12.7	6.9
All	26	840.6	849.7	15.0	27.7	26.2	61.7	14.7	11.6
IV.									
Non-split	16	887.3	897.9	5.9	18.6	8.6	26.1	6.5	18.0
Split	6	917.5	984.7	1.7	27.8	110.0	38.3	3.2	13.3
All	22	895.5	921.5	4.7	21.1	36.2	29.4	5.6	16.7
All N. S.	61	857.8	874.6	12.9	22.2	18.4	38.5	12.4	12.3
All splits	41	878.1	900.3	11.6	16.7	42.3	27.1	10.7	11.1
Gr. total	102	866.0	884.9	12.4	20.0	28.0	33.9	11.7	11.9

Table 12. Breakage and decay in watermelons. Loading Method No. 1- Cincinnati Plan. Non-split destinations.

Test No.		No. Melons		No. Bruised		No. Bruised, Cracked & Broken		No. Decayed	
Test load	Check load	Test load	Check load	Test load	Check load	Test load	Check load	Test load	Check load
RG:									
1	2	913	840	2	0	4	10	2	6
7	8	934	957	0	0	3	7	12	18
9	10	870	821	67	0	102	40	3	22
13	14	972	931	2	6	2	18	10	17
77	78	832	824	2	3	3	4	3	3
79	80	916	827	0	29	12	32	18	20
97	98	939	915	0	13	9	22	6	4
99	100	986	986	12	2	12	7	59	19
133	134	1408	1482	0	0	7	3	129	0
135	136	966	986	0	0	0	0	0	0
155	156	848	884	0	0	0	6	0	0
Average		962.2	950.3	7.7	4.8	14.0	13.5	22.0	9.9
LG:									
161	162	868	872	3	0	7	0	0	2
163	164	838	840	70	33	85	45	0	0
Average		853.0	856.0	36.5	16.5	46.0	22.5	0	1.0
LS:									
115	116	948	986	105	30	117	40	0	0
179	180	557	638	20	73	60	103	10	0
Average		752.5	812.0	62.5	51.5	88.5	71.5	5.0	0
Grand Average		919.7	919.3	18.9	12.6	25.9	22.7	16.8	7.4

Table 13. Breakage and decay in watermelons. Loading Method No. 1 - Cincinnati Plan. Split destinations.

Test No.		No. Melons		No. Bruised		No. bruised, cracked & broken		No. decayed	
Test load	Check load	Test load	Check load	Test load	Check load	Test load	Check load	Test load	Check load
RG:									
3	4	975	1027	0	11	0	22	25	0
67	68	820	972	0	0	6	0	0	12
73	74	919	966	0	0	3	2	6	0
81	82	786	831	4	0	4	2	0	0
109	110	926	861	12	0	17	5	2	9
111	112	963	1416	0	20	34	33	14	44
131	132	778	793	2	1	11	1	8	3
Average		881.0	980.9	2.6	4.6	10.7	9.3	7.9	9.7
LG:									
157	158	996	948	35	42	45	42	95	30
175	176	956	1006	39	46	53	51	4	1
Average		961.0	977.0	37.0	44.0	49.0	46.5	49.5	15.5
LS:									
None									
Grand Average		898.8	980.0	10.2	13.3	19.2	17.5	17.1	11.0

able 14. Breakage and decay in watermelons. Loading Method No. 2 - Illinois Central Plan. Non-split destinations.

Test No.		No. Melons		No. Bruised		No. Bruised, Cracked & Broken		No. Decayed	
Test Load	Check Load	Test Load	Check Load	Test Load	Check Load	Test Load	Check Load	Test Load	Check Load
RG:									
33	34	804	818	64	0	70	48	66	8
39	40	760	780	20	23	28	34	2	2
41	42	818	842	1	0	9	10	15	0
43	44	792	830	8	0	8	0	0	0
95	96	910	979	0	2	2	10	3	10
113	114	978	1015	26	24	41	49	25	44
121	122	831	856	0	0	1	2	2	14
127	128	840	943	6	7	6	11	8	16
Average		841.6	882.9	15.6	7.0	20.6	20.5	15.1	11.8
LG:									
151	152	864	868	7	0	0	0	5	0
Average		864.0	868.0	7.0	0	0	0	5.0	0
LS:									
181	182	632	638	0	3	0	8	0	0
183	184	640	638	35	30	194	75	0	20
195	196	591	600	0	0	3	0	0	0
203	204	534	534	30	78	54	106	5	0
Average		599.3	602.5	16.3	27.8	62.7	47.3	1.3	5.0
Grand Average		768.8	795.5	15.2	12.8	32.5	27.2	10.1	8.8

Table 15. Breakage and decay in watermelons. Loading Method No. 2 - Illinois Central Plan. Split destinations.

Test No.		No. Melons		No. Bruised		No. bruised, cracked & broken		No. decayed	
Test load	check load	Test load	Check load	Test load	Check load	Test load	Check load	Test load	Check load
RG:									
21	22	1114	1024	9	0	27	0	21	40
25	26	1015	940	0	0	40	15	45	0
27	28	825	818	10	56	16	118	11	10
29	30	960	969	16	0	108	0	16	0
31	32	876	943	0	1	2	6	2	1
37	38	913	918	4	0	5	14	4	13
45	46	918	981	4	0	9	0	9	0
71	72	858	827	21	9	39	17	0	0
91	92	924	888	0	0	0	0	0	15
105	106	864	864	0	0	22	1	0	1
117	118	858	920	0	11	0	13	5	2
123	124	786	876	0	0	0	13	2	37
137	138	830	827	0	0	5	8	7	0
169	170	801	892	0	33	0	33	16	0
Average		895.9	906.2	4.6	7.9	19.5	17.0	9.9	8.5
LG:									
167	168	1010	966	1	10	1	10	14	82
Average		1010.0	966.0	1.0	10.0	1.0	10.0	14.0	82.0
LS:									
139	140	684	655	0	40	91	77	0	5
187	188	658	640	134	20	230	35	0	10
Average		671.0	647.5	67.0	30.0	160.5	56.0	9	7.5
Grand Average		876.1	879.3	11.7	10.6	35.0	21.1	8.9	12.7

Table 16. Breakage and decay in watermelons. Loading Method No. 3 - Hartsville Plan. Non-split destination.

Test No.		No. Melons		No. Bruised		No. Bruised, cracked & broken		No. decayed	
Test load	Check load	Test load	Check load	Test load	Check load	Test load	Check load	Test load	Check load
RG:									
55	56	769	792	0	0	0	0	0	0
59	60	775	891	0	0	6	4	25	18
61	62	804	830	0	1	1	9	1	10
69	70	746	745	8	9	8	18	2	0
87	88	812	925	5	0	15	0	0	0
89	90	806	887	0	0	2	5	11	9
93	94	824	827	11	94	13	118	6	13
119	120	912	1015	4	5	6	10	32	13
129	130	831	929	8	4	22	13	17	3
Average		808.8	871.2	4.0	12.6	8.1	19.7	10.4	7.3
LG:									
75	76	880	932	2	5	5	7	11	13
85	86	1086	1074	71	63	96	69	35	14
171	172	960	952	10	117	15	135	0	62
Average		975.3	986.0	27.7	61.7	38.7	70.3	15.3	29.7
LS:									
185	186	582	552	2	132	0	183	4	49
189	190	944	942	2	3	2	5	0	0
191	192	1076	1128	0	0	32	85	0	35
201	202	549	551	40	70	65	115	0	0
205	206	984	882	52	0	84	465	123	0
Average		827.0	811.0	10.2	41.0	37.0	170.6	25.4	16.8
Grand Average		843.5	873.8	12.6	29.6	22.0	73.0	15.7	14.1

Table 17.Breakage and decay in watermelons. Loading Method No. 3 - Hartsville Plan. Split destinations.

Test No.		No. Melons		No. Bruised		No. bruised, cracked&broken		No. decayed	
Test load	Check load	Test load	Check load	Test load	Check load	Test load	Check load	Test load	Check load
RG:									
5	6	1080	882	0	0	48	7	80	29
17	18	685	720	5	42	6	60	6	0
57	58	879	783	0	21	7	35	13	6
65	66	837	827	0	4	0	4	0	5
83	84	778	780	0	0	21	0	0	6
Average		851.8	798.4	1.0	13.4	16.4	21.2	19.8	9.2
LG:									
None									
LS:									
19	20	681	704	0	60	0	74	0	13
193	194	620	608	0	6	21	24	0	3
197	198	882	902	170	9	170	49	0	0
199	200	1072	1032	0	76	35	109	15	0
Average		813.8	811.5	42.5	37.8	56.5	64.1	3.8	4.0
Grand average		834.9	804.2	19.4	24.2	34.1	40.2	12.7	6.9

Table 18. Breakage and decay in watermelons. Loading Method No. 4 - Modified pad. Non-split destination.

Test No.		No. Melons		No. Bruised		No. Bruised, cracked&broken		No. decayed	
Test load	Check load	Test load	Check load	Test load	Check load	Test load	Check load	Test load	Check load
RG:									
11	12	730	728	55	31	55	68	0	11
23	24	825	831	8	10	9	11	10	18
35	36	879	858	0	0	14	0	9	0
49	50	855	868	0	6	0	6	6	6
51	52	806	806	0	0	4	4	6	2
101	102	914	928	8	0	14	4	12	10
103	104	934	891	2	5	22	16	13	42
107	108	1027	1126	5	60	7	75	5	25
143	144	772	778	4	5	5	9	9	8
145	146	946	986	0	14	0	22	0	14
Average		868.8	880.0	8.2	13.1	13.0	21.5	7.0	13.6
LG:									
141	142	932	940	0	0	0	0	2	0
147	148	920	890	0	84	0	105	4	44
149	150	1082	1124	4	8	5	14	26	20
153	154	764	798	0	38	8	49	0	16
165	166	966	966	6	35	6	35	0	72
173	174	844	848	2	1	5	1	2	0
Average		918.0	927.7	2.0	27.7	4.0	34.0	5.7	25.3
Grand Average		887.3	897.9	5.9	18.6	8.6	26.1	6.5	18.0

Table 19. Breakage and decay in watermelons. Loading Method No. 4 - Modified pad. Split destinations.

Test No.		No. melons		No. bruised		No. bruised, cracked&broken		No. decayed	
Test load	Check load	Test load	Check load	Test load	Check load	Test load	Check load	Test load	Check load
RG:									
15	16	824	879	10	0	13	0	4	0
53	54	986	1010	0	7	0	29	0	0
63	64	827	901	0	0	12	0	7	0
177	178	812	952	0	52	75	63	7	23
Average		862.3	935.5	2.5	14.8	25.0	23.1	4.5	5.8
LG:									
125	126	1128	1246	0	36	560	47	0	23
159	160	928	920	0	72	0	91	1	34
Average		1028.0	1083.0	0	54.0	280.0	69.0	0.5	28.5
Grand average		917.5	984.7	1.7	27.8	110.0	38.3	3.2	13.3